SEQUENCE.TXT

SEQUENCE LISTING

<110> Tours Nestlé Research Center

<120> Implication Of Proteinase And Proteinase Inhibitor In Coffee Flavour

<130> Patent Proteinase and Proteinase Inhibitor Coffee

<160> 16

<170> PatentIn version 3.1

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aat cac cac cac cgc cac cac cca ggt agg tct tct gca aac cat cgt      313
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cta ctg ggc acc acc aca gag gtt cac ttc aag tcc ttc gtg gag gag      361
Leu Leu Gly Thr Thr Thr Glu Val His Phe Lys Ser Phe Val Glu Glu
65                  70                  75                  80

tac gag aaa act tac tct acg cac gag gag tac gtg cac cgc ctg ggg      409
Tyr Glu Lys Thr Tyr Ser Thr His Glu Glu Tyr Val His Arg Leu Gly
                85                  90                  95

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Ile Phe Ala Lys Asn Leu Ile Lys Ala Ala Glu His Gln Ala Met Asp
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ccc tcc gca atc cac ggc gtc acc cag ttc tct gat ctc acc gag gag      505
Pro Ser Ala Ile His Gly Val Thr Gln Phe Ser Asp Leu Thr Glu Glu
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gag ttt gag gct acg tac atg ggc ctt aaa ggt ggc gct gga gtt ggt      553
Glu Phe Glu Ala Thr Tyr Met Gly Leu Lys Gly Gly Ala Gly Val Gly
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ggg acc acc cag ctg ggg aaa gat gat ggg gat gag agt gca gca gag      601
Gly Thr Thr Gln Leu Gly Lys Asp Asp Gly Asp Glu Ser Ala Ala Glu
145                 150                 155                 160

gtg atg atg gat gta tct gat ttg ccg gag agt ttt gat tgg aga gaa      649
Val Met Met Asp Val Ser Asp Leu Pro Glu Ser Phe Asp Trp Arg Glu
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aaa ggt gct gtg acc gaa gtg aag acg cag gga aga tgt gga tcg tgt      697
Lys Gly Ala Val Thr Glu Val Lys Thr Gln Gly Arg Cys Gly Ser Cys
            180                 185                 190

tgg gct ttt agt aca act gga gct att gaa gga gct aat ttc att gca      745
Trp Ala Phe Ser Thr Thr Gly Ala Ile Glu Gly Ala Asn Phe Ile Ala
        195                 200                 205

act ggc aag ctt ctc agc cta agt gaa cag cag ctt gtg gat tgt gat      793
Thr Gly Lys Leu Leu Ser Leu Ser Glu Gln Gln Leu Val Asp Cys Asp
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cat atg tgt gat tta aaa gaa aaa gat gac tgt gat gat gga tgc tcc      841
His Met Cys Asp Leu Lys Glu Lys Asp Asp Cys Asp Asp Gly Cys Ser
225                 230                 235                 240

gga ggg cta atg aca act gct ttc aac tac ttg ata gag gca gga ggt      889
Gly Gly Leu Met Thr Thr Ala Phe Asn Tyr Leu Ile Glu Ala Gly Gly
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Ile Glu Glu Glu Val Thr Tyr Pro Tyr Thr Gly Lys Arg Gly Glu Cys
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Lys Phe Asn Pro Glu Lys Val Ala Val Lys Val Arg Asn Phe Ala Lys
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atc cct gag gat gag agt caa att gct gcc aat gta gtg cat aat ggc     1033
Ile Pro Glu Asp Glu Ser Gln Ile Ala Ala Asn Val Val His Asn Gly
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ccg ctt gct att gga ttg aat gcg gta ttc atg caa act tac atc ggg     1081
Pro Leu Ala Ile Gly Leu Asn Ala Val Phe Met Gln Thr Tyr Ile Gly
305                 310                 315                 320

ggt gtg tca tgt cct ctt att tgt gac aaa aag agg atc aac cat ggt     1129
Gly Val Ser Cys Pro Leu Ile Cys Asp Lys Lys Arg Ile Asn His Gly
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gtt ctt ctt gtg ggc tat ggt tct aga ggc ttc tca atc ctt agg ctt     1177
Val Leu Leu Val Gly Tyr Gly Ser Arg Gly Phe Ser Ile Leu Arg Leu
            340                 345                 350

ggc tac aag cca tac tgg att atc aag aac tca tgg ggg aag cgt tgg     1225
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ggc gaa cat ggt tgc tac cgg ctt tgt cga ggg cac aac atg tgt gga     1273
Gly Glu His Gly Cys Tyr Arg Leu Cys Arg Gly His Asn Met Cys Gly
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atg agc aca atg gtt tca gct gtg gtg aca cag acc tct tga             1315
Met Ser Thr Met Val Ser Ala Val Val Thr Gln Thr Ser
385                 390                 395

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tatcatgttt tcgaaatatt taggtttgta taatatgaag ggtagagagt aataagaacc   1435

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Ile Gln Tyr Arg Val Gln Asp Pro Leu Met Ile Arg Gln Val Thr Asp
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Asn His His His Arg His His Pro Gly Arg Ser Ser Ala Asn His Arg
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65 70 75 80

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85 90 95

Ile Phe Ala Lys Asn Leu Ile Lys Ala Ala Glu His Gln Ala Met Asp
100 105 110

Pro Ser Ala Ile His Gly Val Thr Gln Phe Ser Asp Leu Thr Glu Glu
115 120 125

Glu Phe Glu Ala Thr Tyr Met Gly Leu Lys Gly Gly Ala Gly Val Gly
130 135 140

Gly Thr Thr Gln Leu Gly Lys Asp Asp Gly Asp Glu Ser Ala Ala Glu
145 150 155 160

Val Met Met Asp Val Ser Asp Leu Pro Glu Ser Phe Asp Trp Arg Glu
165 170 175

Lys Gly Ala Val Thr Glu Val Lys Thr Gln Gly Arg Cys Gly Ser Cys
180 185 190

Trp Ala Phe Ser Thr Thr Gly Ala Ile Glu Gly Ala Asn Phe Ile Ala
195 200 205

Thr Gly Lys Leu Leu Ser Leu Ser Glu Gln Gln Leu Val Asp Cys Asp
210 215 220

His Met Cys Asp Leu Lys Glu Lys Asp Asp Cys Asp Asp Gly Cys Ser
225 230 235 240

Gly Gly Leu Met Thr Thr Ala Phe Asn Tyr Leu Ile Glu Ala Gly Gly
245 250 255

Ile Glu Glu Glu Val Thr Tyr Pro Tyr Thr Gly Lys Arg Gly Glu Cys
260 265 270

Lys Phe Asn Pro Glu Lys Val Ala Val Lys Val Arg Asn Phe Ala Lys
275 280 285

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Ile Pro Glu Asp Glu Ser Gln Ile Ala Ala Asn Val Val His Asn Gly
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Pro Leu Ala Ile Gly Leu Asn Ala Val Phe Met Gln Thr Tyr Ile Gly
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Gly Val Ser Cys Pro Leu Ile Cys Asp Lys Lys Arg Ile Asn His Gly
325 330 335

Val Leu Leu Val Gly Tyr Gly Ser Arg Gly Phe Ser Ile Leu Arg Leu
340 345 350

Gly Tyr Lys Pro Tyr Trp Ile Ile Lys Asn Ser Trp Gly Lys Arg Trp
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Met Ala Lys Pro Ser Ser Ser Leu Leu Thr Leu

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                    1               5                   10

cct tcc ttt ctt ctg atc ttt ttc att ctt gca cta ttt tcc acc acc      159
Pro Ser Phe Leu Leu Ile Phe Phe Ile Leu Ala Leu Phe Ser Thr Thr
            15                  20                  25

ctc caa gtt aat gcc ttg gga agg aaa gtg gga gca agg gag aag att      207
Leu Gln Val Asn Ala Leu Gly Arg Lys Val Gly Ala Arg Glu Lys Ile
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gag gat gtg aag agc aac aaa gaa gtt caa gaa ctt ggg gaa tat tgt      255
Glu Asp Val Lys Ser Asn Lys Glu Val Gln Glu Leu Gly Glu Tyr Cys
    45                  50                  55

gtt tct gag tac aac aag agt ttg cgg aag aag aac aac gaa agt ggt      303
Val Ser Glu Tyr Asn Lys Ser Leu Arg Lys Lys Asn Asn Glu Ser Gly
60                  65                  70                  75

gct cct ata atc ttc aca tct gtg gtg gag gct gag aag cag gtg gtt      351
Ala Pro Ile Ile Phe Thr Ser Val Val Glu Ala Glu Lys Gln Val Val
                80                  85                  90

gct ggg atc aaa tat tat ctc aag att aag gcc acc act tct tct ggg      399
Ala Gly Ile Lys Tyr Tyr Leu Lys Ile Lys Ala Thr Thr Ser Ser Gly
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gtt ccc aag gtt tac gat gcc att gtg gtg gtt cgg cct tgg gtt cat      447
Val Pro Lys Val Tyr Asp Ala Ile Val Val Val Arg Pro Trp Val His
        110                 115                 120

act aag cca agg cag ttg ctc aac ttc tcc cct tcc cct gcc act aaa      495
Thr Lys Pro Arg Gln Leu Leu Asn Phe Ser Pro Ser Pro Ala Thr Lys
    125                 130                 135

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attattagta cctttcagtg caaattctct ttgctgttaa gtgttcggtt ttttttttt    608

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Asn Lys Glu Val Gln Glu Leu Gly Glu Tyr Cys Val Ser Glu Tyr Asn
50 55 60

Lys Ser Leu Arg Lys Lys Asn Asn Glu Ser Gly Ala Pro Ile Ile Phe
65 70 75 80

Thr Ser Val Val Glu Ala Glu Lys Gln Val Val Ala Gly Ile Lys Tyr
85 90 95

Tyr Leu Lys Ile Lys Ala Thr Thr Ser Ser Gly Val Pro Lys Val Tyr
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gttgttttgc ttttgtgata agtaattgtt ggtttattgg tttttcatga tggctccgga    240

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tgttattttt gatgtagaag gtaacaataa tgtggttttt gaggtggaac ataaatttaa    360

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tcccaccgcc atggcaga atg ctt gca gcc ctt gac atg cct ttg ggt ggc       471
                       Met Leu Ala Ala Leu Asp Met Pro Leu Gly Gly
                       1               5                  10

aat ggt tcc cct aca gat gca gcg ctc tat ttc act aag ctt tcg att       519
Asn Gly Ser Pro Thr Asp Ala Ala Leu Tyr Phe Thr Lys Leu Ser Ile
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ggg act cct cct cag gat tat tat gtg caa gtg gat aca gga agt gac       567
Gly Thr Pro Pro Gln Asp Tyr Tyr Val Gln Val Asp Thr Gly Ser Asp
        30                  35                  40

att ctc tgg gta aac tgt gct ggt tgt gtc aga tgc ccc aag aaa agc       615
Ile Leu Trp Val Asn Cys Ala Gly Cys Val Arg Cys Pro Lys Lys Ser
    45                  50                  55

agt ctt ggt att gac ttg act cta tat gac atg aaa gcc tcc agc acc       663
Ser Leu Gly Ile Asp Leu Thr Leu Tyr Asp Met Lys Ala Ser Ser Thr
60                  65                  70                  75

ggg aga ctt gtt act tgt gat caa gac ttt tgc ttg tct gca ttc aat       711
Gly Arg Leu Val Thr Cys Asp Gln Asp Phe Cys Leu Ser Ala Phe Asn
                80                  85                  90

gcc cca gcc tct gat tgc aag gtt ggt aac ccc tgt gca tat tct gtt       759
Ala Pro Ala Ser Asp Cys Lys Val Gly Asn Pro Cys Ala Tyr Ser Val
            95                  100                 105

act tac gga gac ggg agc tca acc ggc gga tat ttt gtc aga gac tat       807
Thr Tyr Gly Asp Gly Ser Ser Thr Gly Gly Tyr Phe Val Arg Asp Tyr
        110                 115                 120

gca aaa ctt aat caa ctg acg gga aat ctt caa acc ata ccc atg aat       855
Ala Lys Leu Asn Gln Leu Thr Gly Asn Leu Gln Thr Ile Pro Met Asn
    125                 130                 135

ggt agt ata gtg ttt ggg tgt tca tct caa caa tct gga gag cta ggg       903
Gly Ser Ile Val Phe Gly Cys Ser Ser Gln Gln Ser Gly Glu Leu Gly
140                 145                 150                 155

tca tct act gaa gca gtt gat ggc ata att ggt ttt gga caa gca aat       951
Ser Ser Thr Glu Ala Val Asp Gly Ile Ile Gly Phe Gly Gln Ala Asn
                160                 165                 170

tca tct att att tca cag ctt gct tca gca gga aag gtt aaa aaa ata       999
Ser Ser Ile Ile Ser Gln Leu Ala Ser Ala Gly Lys Val Lys Lys Ile
            175                 180                 185

ttt tca cat tgc ttg gat ggt atc aat gga gga ggc ata ttt gct att      1047
Phe Ser His Cys Leu Asp Gly Ile Asn Gly Gly Gly Ile Phe Ala Ile
        190                 195                 200

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Glu Ala His Tyr Asn Val Val Leu Asn Ala Ile Glu Val Gly Gly Asp
220                 225                 230                 235

gtt cta aac ctt ccc tca gat gta tta gga ggt gga tct gga agt ggt      1191
Val Leu Asn Leu Pro Ser Asp Val Leu Gly Gly Gly Ser Gly Ser Gly
                240                 245                 250

aca ata ata gac agt ggt aca acc ttg gct tat ctt cct gat gat gtc      1239
Thr Ile Ile Asp Ser Gly Thr Thr Leu Ala Tyr Leu Pro Asp Asp Val
            255                 260                 265

tat act cca ctt atg gaa aag att acg gca tcc caa tcc aac ttg aaa      1287
Tyr Thr Pro Leu Met Glu Lys Ile Thr Ala Ser Gln Ser Asn Leu Lys
        270                 275                 280

atc cat att gtt gaa aat cag ttc aag tgc ttt gtc tat agt gga aat      1335
Ile His Ile Val Glu Asn Gln Phe Lys Cys Phe Val Tyr Ser Gly Asn
    285                 290                 295

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Val Asp Asp Gly Phe Pro Val Val Ser Phe His Phe Glu Asp Ser Leu
300                 305                 310                 315

tct ttg aca gtt tat ccc cat gaa tat ctc ttt gat ctt cat gat gat      1431
Ser Leu Thr Val Tyr Pro His Glu Tyr Leu Phe Asp Leu His Asp Asp
                320                 325                 330

caa tgg tgt att ggt tgg cag aat aag ggt atg cag aca aga gat gga      1479
Gln Trp Cys Ile Gly Trp Gln Asn Lys Gly Met Gln Thr Arg Asp Gly
            335                 340                 345

agg gaa gta act ctt ttg gga gat ctt gta ctc gca aac aag ctt gtt      1527
Arg Glu Val Thr Leu Leu Gly Asp Leu Val Leu Ala Asn Lys Leu Val
        350                 355                 360

tcg tat gat ctt gaa aat caa acc att gga tgg gct gaa tat aat tgc      1575
Ser Tyr Asp Leu Glu Asn Gln Thr Ile Gly Trp Ala Glu Tyr Asn Cys
    365                 370                 375

tct tcg agc atc aaa ttg aga gac gag aag tca gga aac gtg tat gct      1623
Ser Ser Ser Ile Lys Leu Arg Asp Glu Lys Ser Gly Asn Val Tyr Ala
380                 385                 390                 395

gtg ggc tct cat atc att tct tca gct cgc ggc ctg aat gct gga aag      1671
Val Gly Ser His Ile Ile Ser Ser Ala Arg Gly Leu Asn Ala Gly Lys
                400                 405                 410

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Ala Leu Arg Phe Leu Leu Leu Ile Ile Thr Ser Leu Leu His Ala Leu
            415                 420                 425

ttg atc cca tga acatttaaaa tcatactagc tgagaaggag gcattatgat         1771
Leu Ile Pro
        430

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tctcatgtgt ttaaagtgaa agtcagttcg tcgagacatc ttgtgactcc ataatcttct   1891
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35 40 45

Cys Ala Gly Cys Val Arg Cys Pro Lys Lys Ser Ser Leu Gly Ile Asp
50 55 60

Leu Thr Leu Tyr Asp Met Lys Ala Ser Ser Thr Gly Arg Leu Val Thr
65 70 75 80

Cys Asp Gln Asp Phe Cys Leu Ser Ala Phe Asn Ala Pro Ala Ser Asp
85 90 95

Cys Lys Val Gly Asn Pro Cys Ala Tyr Ser Val Thr Tyr Gly Asp Gly
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Ser Ser Thr Gly Gly Tyr Phe Val Arg Asp Tyr Ala Lys Leu Asn Gln
115 120 125

Leu Thr Gly Asn Leu Gln Thr Ile Pro Met Asn Gly Ser Ile Val Phe
130 135 140

Gly Cys Ser Ser Gln Gln Ser Gly Glu Leu Gly Ser Ser Thr Glu Ala
145 150 155 160

Val Asp Gly Ile Ile Gly Phe Gly Gln Ala Asn Ser Ser Ile Ile Ser
165 170 175

Gln Leu Ala Ser Ala Gly Lys Val Lys Lys Ile Phe Ser His Cys Leu
180 185 190

Asp Gly Ile Asn Gly Gly Gly Ile Phe Ala Ile Gly Gln Val Val Gln
195 200 205

Pro Lys Leu Lys Thr Thr Pro Leu Val Pro Asn Glu Ala His Tyr Asn
210 215 220

Val Val Leu Asn Ala Ile Glu Val Gly Gly Asp Val Leu Asn Leu Pro
225 230 235 240

Ser Asp Val Leu Gly Gly Gly Ser Gly Ser Gly Thr Ile Ile Asp Ser
245 250 255

Gly Thr Thr Leu Ala Tyr Leu Pro Asp Asp Val Tyr Thr Pro Leu Met
260 265 270

Glu Lys Ile Thr Ala Ser Gln Ser Asn Leu Lys Ile His Ile Val Glu
275 280 285

Asn Gln Phe Lys Cys Phe Val Tyr Ser Gly Asn Val Asp Asp Gly Phe
290 295 300

Pro Val Val Ser Phe His Phe Glu Asp Ser Leu Ser Leu Thr Val Tyr
305 310 315 320

Pro His Glu Tyr Leu Phe Asp Leu His Asp Asp Gln Trp Cys Ile Gly
325 330 335

Trp Gln Asn Lys Gly Met Gln Thr Arg Asp Gly Arg Glu Val Thr Leu
340 345 350

Leu Gly Asp Leu Val Leu Ala Asn Lys Leu Val Ser Tyr Asp Leu Glu
355 360 365

Asn Gln Thr Ile Gly Trp Ala Glu Tyr Asn Cys Ser Ser Ser Ile Lys
370 375 380

Leu Arg Asp Glu Lys Ser Gly Asn Val Tyr Ala Val Gly Ser His Ile
385 390 395 400

Ile Ser Ser Ala Arg Gly Leu Asn Ala Gly Lys Ala Leu Arg Phe Leu
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Met Glu Arg Arg Tyr Leu Trp Ala Ala Phe Val
1 5 10

tta ggg gcg att gtg tgt tct cta ttt cct ctt cct tct gaa gga tta 159
Leu Gly Ala Ile Val Cys Ser Leu Phe Pro Leu Pro Ser Glu Gly Leu
15 20 25

aag cga att agc ctg aaa aaa aaa ccc tta gat att caa agc ata aga 207
Lys Arg Ile Ser Leu Lys Lys Lys Pro Leu Asp Ile Gln Ser Ile Arg
30 35 40

gct gcc aaa tta gct cat ctg gag agc aca cat ggc gct ggt agg aaa 255
Ala Ala Lys Leu Ala His Leu Glu Ser Thr His Gly Ala Gly Arg Lys
45 50 55

gag atg gac aac aat tta ggc agt tcc aat gag gac ata ttg cct tta 303
Glu Met Asp Asn Asn Leu Gly Ser Ser Asn Glu Asp Ile Leu Pro Leu
60 65 70 75

aag aat tac ctg gat gcc cag tac tat gga gag att gga att ggt act 351

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                80                  85                  90

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Pro Pro Gln Lys Phe Thr Val Ile Phe Asp Thr Gly Ser Ser Asn Leu
            95                  100                 105

tgg gtg cca tcg gca aaa tgt tac ttc tct att gcc tgc tgg ctc cac      447
Trp Val Pro Ser Ala Lys Cys Tyr Phe Ser Ile Ala Cys Trp Leu His
        110                 115                 120

tcc aag tac aag gca aag aag tca agt act tat aca gcc ata ggg aaa      495
Ser Lys Tyr Lys Ala Lys Lys Ser Ser Thr Tyr Thr Ala Ile Gly Lys
    125                 130                 135

tct tgt tca att cgt tat ggt tct gga tca att tct gga ttc tcc agt      543
Ser Cys Ser Ile Arg Tyr Gly Ser Gly Ser Ile Ser Gly Phe Ser Ser
140                 145                 150                 155

cag gat aac gtt gaa gtt ggt gat ctt gtt gtc aaa gat caa gtt ttt      591
Gln Asp Asn Val Glu Val Gly Asp Leu Val Val Lys Asp Gln Val Phe
                160                 165                 170

att gaa gct tca cga gaa gga agt ctt aca ttt gta att gcc aag ttt      639
Ile Glu Ala Ser Arg Glu Gly Ser Leu Thr Phe Val Ile Ala Lys Phe
            175                 180                 185

gac ggg ata ctt ggc ctt gga ttc cag gag atc gct gtt gat aac atg      687
Asp Gly Ile Leu Gly Leu Gly Phe Gln Glu Ile Ala Val Asp Asn Met
        190                 195                 200

gtg ccg gtc tgg tat aat atg gtg gac caa ggt ctc gtg gat gag caa      735
Val Pro Val Trp Tyr Asn Met Val Asp Gln Gly Leu Val Asp Glu Gln
    205                 210                 215

gta ttc tct ttc tgg ctt aac cgc gac cca aat gct gaa gac gga ggt      783
Val Phe Ser Phe Trp Leu Asn Arg Asp Pro Asn Ala Glu Asp Gly Gly
220                 225                 230                 235

gag ctg gtc ttt ggt ggt gta gat aca aat cac ttc aag gga aag cat      831
Glu Leu Val Phe Gly Gly Val Asp Thr Asn His Phe Lys Gly Lys His
                240                 245                 250

aca tat gtt cct gta act cag aag gga tac tgg caa ttt aaa atg gga      879
Thr Tyr Val Pro Val Thr Gln Lys Gly Tyr Trp Gln Phe Lys Met Gly
            255                 260                 265

gat ttt ctc att ggg aac gtc tca aca ggc ttt tgt gaa gga ggt tgt      927
Asp Phe Leu Ile Gly Asn Val Ser Thr Gly Phe Cys Glu Gly Gly Cys
        270                 275                 280

gct gct att gtg gac tct gga aca tcg ttg ctc gct ggt cca act act      975
Ala Ala Ile Val Asp Ser Gly Thr Ser Leu Leu Ala Gly Pro Thr Thr
    285                 290                 295

gtt gtg act caa att aat cat gcc att gga gct gaa gga gta gtt agc     1023
Val Val Thr Gln Ile Asn His Ala Ile Gly Ala Glu Gly Val Val Ser
300                 305                 310                 315

act gaa tgt aaa gaa att gtt tca cag tat ggt gaa ctg att tgg gat     1071
Thr Glu Cys Lys Glu Ile Val Ser Gln Tyr Gly Glu Leu Ile Trp Asp
                320                 325                 330
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ctc ctc gta tca ggg gta cta ccc gac aga gtt tgt aaa caa gct ggt      1119
Leu Leu Val Ser Gly Val Leu Pro Asp Arg Val Cys Lys Gln Ala Gly
            335                 340                 345

tta tgt ccc ctt cgt ggt gct cag cat gag aat gct tat atc aag tca      1167
Leu Cys Pro Leu Arg Gly Ala Gln His Glu Asn Ala Tyr Ile Lys Ser
        350                 355                 360

gtc gtc gac gag gag aac aag gag gaa gct tct gtt ggt gaa tcc ccg      1215
Val Val Asp Glu Glu Asn Lys Glu Glu Ala Ser Val Gly Glu Ser Pro
    365                 370                 375

atg tgt act gct tgt gaa atg gct gtt gtt tgg atg caa aac cag ctg      1263
Met Cys Thr Ala Cys Glu Met Ala Val Val Trp Met Gln Asn Gln Leu
380                 385                 390                 395

aaa cag cag gga act aag gag aaa gtg ctt gca tat gtg aat cag ctt      1311
Lys Gln Gln Gly Thr Lys Glu Lys Val Leu Ala Tyr Val Asn Gln Leu
                400                 405                 410

tgt gaa agc ata cca agt ccc atg gga gaa tcc atc att gac tgc aac      1359
Cys Glu Ser Ile Pro Ser Pro Met Gly Glu Ser Ile Ile Asp Cys Asn
            415                 420                 425

agt tta tcc acc ctg cca aat gtt tca ttc acc atc gga ggg aaa agt      1407
Ser Leu Ser Thr Leu Pro Asn Val Ser Phe Thr Ile Gly Gly Lys Ser
        430                 435                 440

ttt gag ctg acc ctt aag gag tat gtt ctt cga act gga gaa ggc ttt      1455
Phe Glu Leu Thr Leu Lys Glu Tyr Val Leu Arg Thr Gly Glu Gly Phe
    445                 450                 455

gct gaa gtc tgc atc agt gga ttc atg gct atg gat gtg ccg ccg cct      1503
Ala Glu Val Cys Ile Ser Gly Phe Met Ala Met Asp Val Pro Pro Pro
460                 465                 470                 475

cgt ggt ccc atc tgg gtt ctg gga gat gtg ttc atg gga gtg tac cac      1551
Arg Gly Pro Ile Trp Val Leu Gly Asp Val Phe Met Gly Val Tyr His
                480                 485                 490

acc gtg ttt gat tat ggt aat ctc cgg atg ggt ttc gca aga gct gct      1599
Thr Val Phe Asp Tyr Gly Asn Leu Arg Met Gly Phe Ala Arg Ala Ala
            495                 500                 505

tag acaagactgt ttatttcgtc tactgtttga cggtcctaag agaagctatg          1652

aagacatgta gtagcttgta aattaggatt taattatgct tggctggttt atgggtggtg   1712

cttttaatat tatatgtaat gtaagcagat atgttacctt gttttagagt ttcaaggaaa   1772

ctgcaatatt tacttccggt aaaaaaaaaa aaaaaaaaaa aaaaaaa                 1819
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<210> 8

<211> 507

<212> PRT

<213> Coffea canephora

<400> 8

Met Glu Arg Arg Tyr Leu Trp Ala Ala Phe Val Leu Gly Ala Ile Val
1 5 10 15

Cys Ser Leu Phe Pro Leu Pro Ser Glu Gly Leu Lys Arg Ile Ser Leu
20 25 30

Lys Lys Lys Pro Leu Asp Ile Gln Ser Ile Arg Ala Ala Lys Leu Ala
35 40 45

His Leu Glu Ser Thr His Gly Ala Gly Arg Lys Glu Met Asp Asn Asn
50 55 60

Leu Gly Ser Ser Asn Glu Asp Ile Leu Pro Leu Lys Asn Tyr Leu Asp
65 70 75 80

Ala Gln Tyr Tyr Gly Glu Ile Gly Ile Gly Thr Pro Pro Gln Lys Phe
85 90 95

Thr Val Ile Phe Asp Thr Gly Ser Ser Asn Leu Trp Val Pro Ser Ala
100 105 110

Lys Cys Tyr Phe Ser Ile Ala Cys Trp Leu His Ser Lys Tyr Lys Ala
115 120 125

Lys Lys Ser Ser Thr Tyr Thr Ala Ile Gly Lys Ser Cys Ser Ile Arg
130 135 140

Tyr Gly Ser Gly Ser Ile Ser Gly Phe Ser Ser Gln Asp Asn Val Glu
145 150 155 160

Val Gly Asp Leu Val Val Lys Asp Gln Val Phe Ile Glu Ala Ser Arg
165 170 175

Glu Gly Ser Leu Thr Phe Val Ile Ala Lys Phe Asp Gly Ile Leu Gly
180 185 190

Leu Gly Phe Gln Glu Ile Ala Val Asp Asn Met Val Pro Val Trp Tyr
195 200 205

Asn Met Val Asp Gln Gly Leu Val Asp Glu Gln Val Phe Ser Phe Trp
210 215 220

Leu Asn Arg Asp Pro Asn Ala Glu Asp Gly Gly Glu Leu Val Phe Gly
225 230 235 240

Gly Val Asp Thr Asn His Phe Lys Gly Lys His Thr Tyr Val Pro Val

245 250 255

Thr Gln Lys Gly Tyr Trp Gln Phe Lys Met Gly Asp Phe Leu Ile Gly
260 265 270

Asn Val Ser Thr Gly Phe Cys Glu Gly Gly Cys Ala Ala Ile Val Asp
275 280 285

Ser Gly Thr Ser Leu Leu Ala Gly Pro Thr Thr Val Val Thr Gln Ile
290 295 300

Asn His Ala Ile Gly Ala Glu Gly Val Val Ser Thr Glu Cys Lys Glu
305 310 315 320

Ile Val Ser Gln Tyr Gly Glu Leu Ile Trp Asp Leu Leu Val Ser Gly
325 330 335

Val Leu Pro Asp Arg Val Cys Lys Gln Ala Gly Leu Cys Pro Leu Arg
340 345 350

Gly Ala Gln His Glu Asn Ala Tyr Ile Lys Ser Val Val Asp Glu Glu
355 360 365

Asn Lys Glu Glu Ala Ser Val Gly Glu Ser Pro Met Cys Thr Ala Cys
370 375 380

Glu Met Ala Val Val Trp Met Gln Asn Gln Leu Lys Gln Gln Gly Thr
385 390 395 400

Lys Glu Lys Val Leu Ala Tyr Val Asn Gln Leu Cys Glu Ser Ile Pro
405 410 415

Ser Pro Met Gly Glu Ser Ile Ile Asp Cys Asn Ser Leu Ser Thr Leu
420 425 430

Pro Asn Val Ser Phe Thr Ile Gly Gly Lys Ser Phe Glu Leu Thr Leu
435 440 445

Lys Glu Tyr Val Leu Arg Thr Gly Glu Gly Phe Ala Glu Val Cys Ile
450 455 460

Ser Gly Phe Met Ala Met Asp Val Pro Pro Pro Arg Gly Pro Ile Trp
465 470 475 480

Val Leu Gly Asp Val Phe Met Gly Val Tyr His Thr Val Phe Asp Tyr
485 490 495

Gly Asn Leu Arg Met Gly Phe Ala Arg Ala Ala
500 505

<210> 9
<211> 726
<212> DNA
<213> Coffea canephora

<400> 9
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tgttgaattt tcagtcgatt ttttgtttct taaagaagga atggcaaaag ttggtgggat 120
cagtgaatct aagggcaatg agaacagcct tgaaattgag agcctggcta agtttgctgt 180
ggatgattac aacaagaaac agaatgccct tttggaattt cagaaggtga tcaacagtaa 240
agagcaggtt gttgctggta ccgtgtacta tctgaccatt gaggtgaaag atgggaatga 300
gaagaagctt tatgaggcca aagtttgggt gaagccatgg ttgaacttca aggaggttca 360
agaattcaag cctgctgctg gtgatactag tgcctaaatt tgcttcttaa caatgcgcta 420
ttgcctattt gcctagtaga aataaagcta acgcgtaaat gtctttcagt tggaaagatt 480
ggagtttcaa acatgcttag tttgtatatg ctataactcg taatattaac atgttagtaa 540
catgttatct tatgttggat agatgttaag accaacataa tcttcgctga tgttcggttc 600
gatgtgatct gatcctgtgg tttttatacc actctggctt gagtatcatt acccttagtc 660
cctttatgtg gctcttattg ttgaaataaa aagtcatttt tctcttaaaa aaaaaaaaaa 720
aaaaaa 726

<210> 10
<211> 98
<212> PRT
<213> Coffea canephora

<400> 10
Met Ala Lys Val Gly Gly Ile Ser Glu Ser Lys Gly Asn Glu Asn Ser
1 5 10 15

Leu Glu Ile Glu Ser Leu Ala Lys Phe Ala Val Asp Asp Tyr Asn Lys
20 25 30

Lys Gln Asn Ala Leu Leu Glu Phe Gln Lys Val Ile Asn Ser Lys Glu

35 40 45

Gln Val Val Ala Gly Thr Val Tyr Tyr Leu Thr Ile Glu Val Lys Asp
50 55 60

Gly Asn Glu Lys Lys Leu Tyr Glu Ala Lys Val Trp Val Lys Pro Trp
65 70 75 80

Leu Asn Phe Lys Glu Val Gln Glu Phe Lys Pro Ala Ala Gly Asp Thr
85 90 95

Ser Ala

<210> 11

<211> 688

<212> DNA

<213> Coffea canephora

<400> 11
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caacaccaat aaccgacgct gcaagaatgg cttctgcctt tccccatctc ctcctactca 120
ccaccctggc agctatctgt cttttctccg acgtcccttc cgcggctttg ggtggtcgcc 180
ccaaagatgc cttagtcggc ggttggagta aggctgaccc caaggaccca gaggtgctag 240
agaacggaaa atttgccata gatgagcaca acaaggaggc cggtaccaag ttggagttta 300
aaactgtggt ggaggcgcag aagcaagtgg tggccggcac aaattacaag attgtgataa 360
aggcattgga tggcactgct tcaaatctgt acgaggccat tgtttgggtc aagccctggc 420
tcaaattcaa gaagcttact tccttcagga aacttccctg atcagattta aggggatgta 480
ataagcatgt gcatttcttg cttaaaactg tggcatgaga ggtgtatgta taatcatctg 540
tatttcttgc ttaaaactgt ggtatgacta tgagagatgt ttgaagtgta ctgtactaca 600
agagctttca tacatatgca agagttgaag cacttgtttg cttctgataa taataataat 660
acatcgtttt aaaaaaaaaa aaaaaaaa 688

<210> 12

<211> 124

<212> PRT

<213> Coffea canephora

<400> 12

Met Ala Ser Ala Phe Pro His Leu Leu Leu Leu Thr Thr Leu Ala Ala
1 5 10 15

Ile Cys Leu Phe Ser Asp Val Pro Ser Ala Ala Leu Gly Gly Arg Pro
20 25 30

Lys Asp Ala Leu Val Gly Gly Trp Ser Lys Ala Asp Pro Lys Asp Pro
35 40 45

Glu Val Leu Glu Asn Gly Lys Phe Ala Ile Asp Glu His Asn Lys Glu
50 55 60

Ala Gly Thr Lys Leu Glu Phe Lys Thr Val Val Glu Ala Gln Lys Gln
65 70 75 80

Val Val Ala Gly Thr Asn Tyr Lys Ile Val Ile Lys Ala Leu Asp Gly
85 90 95

Thr Ala Ser Asn Leu Tyr Glu Ala Ile Val Trp Val Lys Pro Trp Leu
100 105 110

Lys Phe Lys Lys Leu Thr Ser Phe Arg Lys Leu Pro
115 120

<210> 13

<211> 697

<212> DNA

<213> Coffea canephora

<400> 13
gttttcgata gtcacaagca attgcaaaaa tctacttcgt acttataagc tagctagttc 60
ctcaaggaaa aaatggctac ggtcgcagcc aaatctgcta ctgccgctat tggtgctgga 120
cagaaaaaca tggtgggtgg tggtctaagc tctactgttc ctcctcgatc gtcaaccgtc 180
aacccgaaag accctcacgt gattcagatc gcacaatttg cagttgcaaa ctacaacgcg 240
aaggccggga ccactgtggt ttggctgaat gtggaatatg gcttctggtg gattgacgat 300
gacacttact acatgcttgc cattaaaact caggatctta cgggcacaca ttgcgacgta 360
gcattggttc gtgaaatatc ggagagcaat ggtacttata gcctcaaatg gtacaatcat 420
aacaataagt gaccacgcac tactcttgat cagctgagga tcaatgactt taattatata 480

tagtgtttat ggtgtggctt tcagtttatg catggatgat gtactgctgt catgcatacg 540

tctccctacg gtggtactag tacattgaag gtgcagttgt accgataaaa atgcaccatt 600

aaataaaaaa aaatcaccgt ttatgtttga gtttgtattc ctgtatgata aaggtgcagt 660

taaggcacca ttaaatatga tggcttcgtc actttct 697

<210> 14

<211> 119

<212> PRT

<213> Coffea canephora

<400> 14

Met Ala Thr Val Ala Ala Lys Ser Ala Thr Ala Ala Ile Gly Ala Gly
1 5 10 15

Gln Lys Asn Met Val Gly Gly Gly Leu Ser Ser Thr Val Pro Pro Arg
20 25 30

Ser Ser Thr Val Asn Pro Lys Asp Pro His Val Ile Gln Ile Ala Gln
35 40 45

Phe Ala Val Ala Asn Tyr Asn Ala Lys Ala Gly Thr Thr Val Val Trp
50 55 60

Leu Asn Val Glu Tyr Gly Phe Trp Trp Ile Asp Asp Asp Thr Tyr Tyr
65 70 75 80

Met Leu Ala Ile Lys Thr Gln Asp Leu Thr Gly Thr His Cys Asp Val
85 90 95

Ala Leu Val Arg Glu Ile Ser Glu Ser Asn Gly Thr Tyr Ser Leu Lys
100 105 110

Trp Tyr Asn His Asn Asn Lys
115

<210> 15

<211> 1367

<212> DNA

<213> Coffea canephora

<400> 15
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gtcgctcact aacatttggt agacatactt cgattatgaa aatggggaag gctttccttt 120
ttgccgttgt attggctgtg atcttagtgg cggctatgag catggagatc acagaaagag 180
atttggcttc tgaggaaagc ttgtgggact tgtacgaaag atggaggagc catcatactg 240
tttctcgaga cctttctgag aaacgaaagc gctttaatgt tttcaaggca aatgtccatc 300
acattcacaa ggtgaaccag aaggacaagc cttacaagct gaaactcaac agtttcgctg 360
atatgaccaa ccacgagttc agggaattct acagttctaa ggtgaaacat taccggatgc 420
tccacggcag tcgtgctaat actggattta tgcatgggaa gactgaaagt ttgccagcct 480
ccgttgattg gagaaagcaa ggagccgtga ctggcgtcaa gaatcaaggc aaatgtggta 540
gctgttgggc attttcaact gtggttggag tcgagggaat caacaaaatc aaaacaggcc 600
aattagtttc tctgtccgag caagaacttg ttgactgtga aacggacaat gaaggatgca 660
acggaggact catggaaaat gcatacgagt ttattaagaa aagtggggga ataacaactg 720
agaggctata tccctacaag gcaagagatg gcagctgtga ttcgtcaaag atgaatgccc 780
ctgctgtgac tattgatggg catgaaatgg tacccgcaaa cgatgagaat gccttgatga 840
aagctgttgc taaccagcct gtatcagtag ctatagatgc gtctggctct gacatgcaat 900
tttattcaga gggtgtatac gctggagact cgtgtggcaa tgagcttgat catggcgtgg 960
cggtcgtcgg ctacgggact gctcttgacg gtactaaata ctggatagtg aagaactcat 1020
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aaggcggagt ttgtgggata gcaatggagg cctcctatcc acttaaattg tcctcccaca 1140
atccaaaacc atccccacct aaggacgacc tctagattga tcctcttata tatatacata 1200
tatatatata tttcagtaga ttcattgaat tttagttaca gactacgcgc ttctgaagac 1260
ttagatcatc tctaggcata gatttatgta atcctgctcc tgtgatggtt tgaataaaca 1320
ataagtagta ctaataaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaa 1367

<210> 16
<211> 359
<212> PRT
<213> Coffea canephora

<400> 16
Met Lys Met Gly Lys Ala Phe Leu Phe Ala Val Val Leu Ala Val Ile
1 5 10 15

Leu Val Ala Ala Met Ser Met Glu Ile Thr Glu Arg Asp Leu Ala Ser
20 25 30

Glu Glu Ser Leu Trp Asp Leu Tyr Glu Arg Trp Arg Ser His His Thr
35 40 45

Val Ser Arg Asp Leu Ser Glu Lys Arg Lys Arg Phe Asn Val Phe Lys
50 55 60

Ala Asn Val His His Ile His Lys Val Asn Gln Lys Asp Lys Pro Tyr
65 70 75 80

Lys Leu Lys Leu Asn Ser Phe Ala Asp Met Thr Asn His Glu Phe Arg
85 90 95

Glu Phe Tyr Ser Ser Lys Val Lys His Tyr Arg Met Leu His Gly Ser
100 105 110

Arg Ala Asn Thr Gly Phe Met His Gly Lys Thr Glu Ser Leu Pro Ala
115 120 125

Ser Val Asp Trp Arg Lys Gln Gly Ala Val Thr Gly Val Lys Asn Gln
130 135 140

Gly Lys Cys Gly Ser Cys Trp Ala Phe Ser Thr Val Val Gly Val Glu
145 150 155 160

Gly Ile Asn Lys Ile Lys Thr Gly Gln Leu Val Ser Leu Ser Glu Gln
165 170 175

Glu Leu Val Asp Cys Glu Thr Asp Asn Glu Gly Cys Asn Gly Gly Leu
180 185 190

Met Glu Asn Ala Tyr Glu Phe Ile Lys Lys Ser Gly Gly Ile Thr Thr
195 200 205

Glu Arg Leu Tyr Pro Tyr Lys Ala Arg Asp Gly Ser Cys Asp Ser Ser
210 215 220

Lys Met Asn Ala Pro Ala Val Thr Ile Asp Gly His Glu Met Val Pro
225 230 235 240

Ala Asn Asp Glu Asn Ala Leu Met Lys Ala Val Ala Asn Gln Pro Val
245 250 255

Ser Val Ala Ile Asp Ala Ser Gly Ser Asp Met Gln Phe Tyr Ser Glu
260 265 270

SEQUENCE.TXT

Gly Val Tyr Ala Gly Asp Ser Cys Gly Asn Glu Leu Asp His Gly Val
275 280 285

Ala Val Val Gly Tyr Gly Thr Ala Leu Asp Gly Thr Lys Tyr Trp Ile
290 295 300

Val Lys Asn Ser Trp Gly Thr Gly Trp Gly Glu Gln Gly Tyr Ile Arg
305 310 315 320

Met Gln Arg Gly Val Asp Ala Ala Glu Gly Gly Val Cys Gly Ile Ala
325 330 335

Met Glu Ala Ser Tyr Pro Leu Lys Leu Ser Ser His Asn Pro Lys Pro
340 345 350

Ser Pro Pro Lys Asp Asp Leu
355